Paper No. 56

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte GILBERT P. HYATT

Appeal No. 2002-0652
Application No. 08/465,072

HEARD: October 22, 2002

Before HAIRSTON,[1] BARRETT, and GROSS, Administrative Patent Judges.

GROSS, Administrative Patent Judge.

**DECISION ON APPEAL**

This is a decision on appeal from the examiner's final rejection of claims 98 through 102, 104 through 108, 115, 116, 120 through 125, 131 through 141, 143 through 147, 154, 155, 161 through 164, 170, 171, 175 through 195, 204 through 206, 211 through 219, 227 through 254, 263 through 265, 273 through 278, 286 through 288, 297 through 304, 307, 310, 311, 314, 317, 320, 323, 324, 327, 330, 331, 334, 336 through 338, 341 through 346, 349, 351 through 353, 356 through 361, 364, 366 through 368, 371, 374 through 377, 379, 382, 384, 389, 390, and 392 through 395.

[1] For purposes of rendering a decision herein, Administrative Patent Judge Hairston has been substituted for Administrative Patent Judge Lall, who has retired since the date of the hearing. ***See In re Bose Corp.***, 772 F.2d 866, 227 USPQ 1 (Fed. Cir. 1985) and MPEP § 1203. See also Paper No. 47.

According to appellant (Brief, page 7), "[t]he instant claims are directed to a display invention having novel processing including temporal interpolation, undersampling, and spatial interpolation." Claims 105, 177, 190, and 191 are illustrative of the claimed invention, and they read as follows:

105. A system comprising:

a memory storing input image information;

an undersampling circuit coupled to the memory and generating undersampled image information by undersampling the input image information stored in the memory;

a spatial interpolation circuit coupled to the undersampling circuit and generating spatially interpolated image information in response to the undersampled image information generated by the undersampling circuit; and

a temporal interpolation circuit coupled to the spatial interpolation circuit and generating temporally interpolated image information in response to the spatially interpolated image information generated by the spatial interpolation circuit.

177. A process comprising the acts of:

storing in a first memory input image information;

generating output spatially filtered image information in response to the input image information;

inputting spatially filtered image information into a second memory in response to the output spatially filtered image information, the second memory storing the spatially filtered image information;

generating undersampled image information by undersampling the spatially filtered image information;

generating spatially interpolated image information in response to the undersampled image information;

generating temporally interpolated image information in response to the spatially interpolated image information;

communicating output image information in response to the temporally interpolated image information;

generating display image information in response to the temporally interpolated image information; and

displaying an image in response to the display image information.

190. A process comprising the acts of:

storing in a first memory input image information;

generating undersampled image information by undersampling the input image information;

generating spatially interpolated image information in response to the undersampled image information; and

generating temporally interpolated image information in response to the spatially interpolated image information.

191. A process as set forth in claim 190, further comprising the act of:

communicating output image information in response to the temporally interpolated image information.

No prior art references of record have been relied upon by the examiner in rejecting the appealed claims.

The examiner on page 5 of the Answer withdrew all rejections in this application except for the following:

Claims 98 through 102, 104 through 108, 115, 116, 120 through 125, 131 through 141, 143 through 147, 154, 155, 161 through 164, 170, 171, 175 through 195, 204 through 206, 211 through 219, 227 through 254, 263 through 265, 273 through 278,

286 through 288, 297 through 304, 307, 310, 311, 314, 317, 320, 323, 324, 327, 330, 331, 334, 336 through 338, 341 through 346, 349, 351 through 353, 356 through 361, 364, 366 through 368, 371, 374 through 377, 379, 382, 384, 389, 390, and 392 through 395 stand rejected under 35 U.S.C. § 112, first paragraph, as being based upon a lack of written description and also as being based on a lack of enabling disclosure.[2]

Reference is made to the Examiner's Answer (Paper No. 48, mailed September 24, 2001) for the examiner's complete reasoning in support of the rejections, and to appellant's Appeal Brief (Paper No. 41, filed June 30, 2000), Supplemental Appeal Brief (Paper No. 46, filed January 8, 2001), Errata to the Appeal Brief and Supplemental Appeal Brief (Paper No. 51, filed February 2, 2001), and Reply Brief (Paper No. 52, filed November 26, 2001) for appellant's arguments thereagainst.

**OPINION**

As a preliminary matter, we note that appellant states on page 9 of the Appeal Brief that the claims do not stand or fall together. Appellant further states (id.) that the claims are separately argued. However, section 8.9 of the Supplemental Brief entitled "Separate Arguments for Separate Patentability of

[2] We note that although the examiner includes claims 196 through 199, 207 through 210, 255 through 258, 305, 318, 332, 335, 347, 350, 362, 365, 383, and 386 in the statement of the rejection, appellant states on pages 8-9 of the supplemental appeal brief that these claims are among those not appealed.

each Claim Regarding § 112-1, § 103, and Double Patenting" merely recites the claim limitations for each claim and concludes for each claim that "the § 112-1 rejections do not establish why the express disclosure of the limitations in this claim does not satisfy § 112-1 (see Sections 8.1-8.3 and particularly the TABLE OF TERMINOLOGY OCCURRENCES)." 37 C.F.R. § 1.192(c)(7) states:

> For each ground of rejection which appellant contests and which applies to a group of two or more claims, the Board shall select a single claim from the group and shall decide the appeal as to the ground of rejection on the basis of that claim alone unless a statement is included that the claims of the group do not stand or fall together and, in the argument under paragraph (c)(8) of this section, appellant explains why the claims of the group are believed to be separately patentable. ***Merely pointing out differences in what the claims cover is not an argument as to why the claims are separately patentable***. (Emphasis ours)

Thus, notwithstanding appellant's assertions to the contrary (Reply Brief, pages 1-4), appellant has provided no separate arguments in accordance with 37 C.F.R. § 1.192(c)(7).

The only place appellant separately treats any of the claims is in the Summary of the Supplemental Appeal Brief, wherein appellant reads claims 105, 177, 190, and 191 on the disclosure. Appellant argues (Reply Brief, pages 80-81) that the examiner misrepresents this reading of claims 105, 177, 190, and 191 on the disclosure as evidence of meeting 35 U.S.C. § 112, first paragraph. 37 C.F.R. § 1.192(c)(8)(i) states:

> (i) For each rejection under 35 U.S.C. § 112, first paragraph, the argument shall specify the errors in the rejection and how the first paragraph of 35 U.S.C. § 112 is complied with, including, as appropriate, how the specification and drawings, if any,
>
> (A) Describe the subject matter defined by each of the rejected claims.

Thus, the rule requires appellant to read the claims on the disclosure. Since the only place that appellant reads any claims on the disclosure is in the Summary of the Supplemental Appeal Brief, the examiner correctly took the reading of claims 105, 177, 190, and 191 as specific arguments according to 37 C.F.R. § 1.192(c)(7) and (c)(8). We note that appellant does set forth a number of arguments regarding the product claims, treating all of the product claims as a single group. Accordingly, we shall decide the appeal on the basis of claims 105, 177, 190, and 191, as well as claim 178 (as representative of the product claims), with the remaining claims standing or falling therewith.

We have carefully considered the claims and the respective positions articulated by appellant and the examiner. As a consequence of our review, we will affirm the written description rejection of claims 98 through 102, 104 through 108, 115, 116, 120 through 125, 131 through 141, 143 through 147, 154, 155, 161 through 164, 170, 171, 175 through 195, 204 through 206, 211 through 219, 227 through 254, 263 through 265, 273 through 278, 286 through 288, 297 through 304, 307, 310, 311, 314, 317, 320,

323, 324, 327, 330, 331, 334, 336 through 338, 341 through 346, 349, 351 through 353, 356 through 361, 364, 366 through 368, 371, 374 through 377, 379, 382, 384, 389, 390, and 392 through 395 and reverse the enablement rejection of the same claims.

**35 U.S.C. § 112, First Paragraph, Written Description Rejection**

According to the examiner (Answer, pages 11-12):

> The specification is simply an amalgamation of permutations of possibilities of things that might be able to be performed without any details to indicate that Appellant actually had possession of any of the possible systems. Nowhere in the lengthy specification does Appellant actually describe a complete and functioning system that would correspond to the claimed subject matter.

The examiner states (Answer, pages 12-13) that the claims are directed to combinations of "undersampling," "temporal interpolation," "spatial interpolation," and "spatial filtering" of image information, all of which are mentioned throughout the specification. However, according to the examiner, "there is no disclosure of actually combining these disparate items into one complete integrated system as is now being claimed." Stated another way (Answer, page 15), "[w]hile many of the individually claimed terms do appear at various places in the original specification, these sections do not reasonably convey to one skilled in the relevant art that Appellant had possession of the claimed invention (specifically the claimed combination of

elements) at the time the application was filed." The examiner concludes (Answer, page 16) that the "interconnections and interactions of the claimed components to perform the claimed functions in combination is lacking from Appellant's specification."

Appellant sets forth numerous general arguments not directed to any particular claims or claim elements. Basically, we are not persuaded by such general arguments about what the examiner should have done, about perceived inconsistencies in the rejection, and boilerplate statements of the law. What is important is the merits of the particular written description and enablement rejections. Nonetheless, as the majority of all of the Briefs is directed to such generalities, we begin by addressing some of the most prevalent general arguments. Then we will address appellant's reading on the disclosure of the four claims reproduced ***supra***.

**Appellant's General Arguments**

Appellant argues (Brief, page 10) that the rejections under 35 U.S.C. § 112, first paragraph, are non-critical "technical" rejections and are "clearly improper." However, section 112 is a statutory requirement of patentability which cannot be ignored.

Appellant contends (Brief, pages 11-14, and Reply Brief, pages 78-80 and 108-109) that the § 112 rejections are based on

disclosed but unclaimed subject matter. Appellant refers to the examiner's discussion of terms such as "can be" and "may be" in the disclosure. Appellant has taken this discussion out of context. The examiner merely points out such terms as evidence that the disclosure is unclear as to how the elements actually ***are*** connected.

Appellant (Brief, pages 14-16 and 23-26, and Reply Brief, pages 11-12 and 107-108) asserts that the examiner has not considered the disclosure as a whole, pointing to "the large number of recitations of the claim terminology in the specification" (Brief, page 15). Appellant (Brief, page 15, and Reply Brief, page 9) directs our attention to the Table of Terminology Occurrences. However, merely pointing to isolated words scattered throughout the specification does not describe the invention claimed as a combination of elements, functions, and interconnections, any more than a dictionary provides written description support for a book where words are used in combination to provide a certain meaning. That various words appear several times does not speak to how the elements are connected nor how they function together.

In a related argument, appellant insists (Brief, pages 56-58) that the examiner requires ***verbatim*** recitation of terminology, which is contrary to the law. Nevertheless, it is

argued (Brief, page 56, and Reply Brief, pages 22-23) that "there is significant verbatim and literal claim terminology in the disclosure." The examiner does ***not*** require ***in haec verba*** (verbatim) support for the claimed subject matter at issue. The examiner properly requires appellant to show written description support for the claim limitation as a whole and not just for isolated words of the limitation spread out over the specification.

Appellant argues (Supplemental Appeal Brief, pages 21-30, and Reply Brief, pages 6-7 and 83) that the examiner's rejections are not supported by "substantial evidence." "Substantial evidence" is the standard of review that the U.S. Court of Appeals for the Federal Circuit applies to the Board's factual findings, ***see In re Gartside***, 203 F.3d 1305, 1315, 53 USPQ2d 1769, 1775 (Fed. Cir. 2000), not to the Board's review of the examiner's findings, as argued by appellant. We review the examiner's findings based on the evidence in the examiner's rejection and appellant's arguments about the errors in the rejection as required by 37 C.F.R. § 1.192(c)(8). However, we are not precluded from relying on other evidence from our own review of the record since it is the facts in our decision that will be reviewed for "substantial evidence."

Appellant (Reply Brief, pages 8-9 and 65-67) argues that the examiner's rejection does not construe the claims as required by ***Gechter v. Davidson***, 116 F.3d 1454, 43 USPQ2d 1030 (Fed. Cir. 1997). The courts review an adverse decision of the Board, 35 U.S.C. §§ 141 and 145, not the examiner's rejection. The central thrust of ***Gechter*** is that the Board must explain the basis for its rulings sufficiently to enable meaningful judicial review. ***See In re Hyatt***, 211 F.3d 1367, 1371, 54 USPQ2d 1664, 1666 (Fed. Cir. 2000). ***Gechter*** does not require that claims always be construed. Express claim construction is only required where the scope and meaning of limitations are in question. It is unnecessary and impractical to expressly interpret every claim limitation in every claim when there is no question as to what is meant. The examiner did not err by giving the claim limitations their ordinary meaning and by not expressly construing each claim limitation. Moreover, appellant merely alleges that the claims have to be construed without saying how the claim construction would affect the rejections. Clearly, this is a "boilerplate" procedural attack that is not tied to the actual rejections.

Appellant concludes (Brief, pages 41-44) that the written description rejections do not establish a ***prima facie*** case, because the examiner has provided no proper explanation or reasoning regarding the adequacy of the disclosure, and the

rejections "appear to be objections to the form and style of the disclosure" rather than the content. Appellant has ignored the examiner's clear explanation on pages 8-16 of the Answer of how the disclosure is broken up into numerous sections, each related to a portion of the invention, with no teachings as to how the various portions are connected to each other and function in response to one another, as recited in the claims. Further, the examiner describes on pages 16-21 of the Answer the lack of any disclosure of the claimed products and the steps of making them, as recited in the claims. Therefore, the examiner has provided reasoning regarding the adequacy of the disclosure.

Appellant states (Brief, pages 16-17) that the disclosure is "legally correct and presumptively valid," since the examiner has failed to present objective reasons to overcome the presumption. The examiner has presented a clear explanation as to what claim limitations he finds to be lacking from the disclosure. The written description rejection under 35 U.S.C. § 112, first paragraph, is used to reject when a claim is amended to recite elements thought to be without support in the original disclosure. ***See In re Rasmussen***, 650 F.2d 1212, 1214-15, 211 USPQ 323, 326 (CCPA 1981). The test for written description is summarized in ***Purdue Pharma L.P. v. Faulding Inc.***, 230 F.3d 1320, 1323, 56 USPQ2d 1481, 1483 (Fed. Cir. 2000):

> In order to satisfy the written description requirement, the disclosure as originally filed does not have to provide ***in haec verba*** support for the claimed subject matter at issue. ***See Fujikawa v. Wattanasin***, 93 F.3d 1559, 1570, 39 USPQ2d 1895, 1904 (Fed. Cir. 1996). Nonetheless, the disclosure "must ... convey with reasonable clarity to those skilled in the art that ... [the inventor] was in possession of the invention." ***Vas-Cath Inc. v. Mahurkar***, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991). Put another way, one skilled in the art, reading the original disclosure, must "immediately discern the limitation at issue" in the claims. ***Waldemar Link GmbH & Co. v. Osteonics Corp.***, 32 F.3d 556, 558, 31 USPQ2d 1855, 1857 (Fed. Cir. 1994). That inquiry is a factual one and must be assessed on a case-by-case basis. ***See Vas-Cath***, 935 F.2d at 1561, 19 USPQ2d at 1116 ("Precisely how close the original description must come to comply with the description requirement of § 112 must be determined on a case-by-case basis.").

Because the sufficiency of the written description is evaluated by one of ordinary skill in the art, details that would be known by the skilled artisan need not be included in a patent specification. ***See Hyatt v. Boone***, 146 F.3d 1348, 1353, 47 USPQ2d 1128, 1131 (Fed. Cir. 1998). However, when an explicit limitation in a claim is not present in the written description, the burden is on the applicant to show that a person of ordinary skill in the art would have understood that the description necessarily includes that limitation. ***Cf. id.*** at 1354-55, 47 USPQ2d at 1132 ("Thus, the written description must include all of the limitations of the interference count, or the applicant must show that any absent text is necessarily comprehended in the description provided and would have been so understood at the

time the patent application was filed." (Emphasis added.)). "One shows that one is 'in possession' of ***the invention*** by describing ***the invention***, with all of its claimed limitations, not that which makes it obvious." ***Lockwood v. American Airlines Inc.***, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997). The written description requirement is not satisfied if the disclosure would lead one to speculate as to "modifications that the inventor might have envisioned, but failed to disclose." ***Id.***

The U.S. Patent and Trademark Office (USPTO) bears the initial burden of presenting a ***prima facie*** case of unpatentability. The burden regarding the written description requirement is described in ***In re Alton***, 76 F.3d 1168, 1175, 37 USPQ2d 1578, 1583 (Fed. Cir. 1996):

> Insofar as the written description requirement is concerned, that burden is discharged by "presenting evidence or reasons why persons skilled in the art would not recognize in the disclosure a description of the invention defined by the claims." ***Wertheim***, 541 F.2d at 263, 191 USPQ at 97. Thus, the burden placed on the examiner varies, depending upon what the applicant claims. If the applicant claims embodiments of the invention that are completely outside the scope of the specification, then the examiner or Board need only establish this fact to make out a prima facie case. ***Id.*** at 263-64, 191 USPQ at 97. If, on the other hand, the specification contains a description of the claimed invention, albeit not ***in ipsis verbis*** (in the identical words), then the examiner or Board, in order to meet the burden of proof, must provide reasons why one of ordinary skill in the art would not consider the description sufficient. ***Id.*** at 264, 191 USPQ at 98. Once the examiner or Board carries the burden of making out a prima facie case of unpatentability, "the burden

> of coming forward with evidence or argument shifts to the applicant." ***Oetiker***, 977 F.2d at 1445, 24 USPQ2d at 1444.

The burden of establishing a ***prima facie*** case should consider that it is extremely difficult to prove that there is no written description support for claim limitations (i.e., to prove a negative), especially where, as here, the disclosure includes 576 pages of specification and 66 pages of drawing figures, whereas it is trivial for appellant, who drafted both the specification and claims, to point out support for the elements, steps, and interconnections recited in the claims.

Appellant argues (Reply Brief, pages 84-90) that the examiner "is attempting to recast written description to require more details than required to meet the enablement requirement" (***Id.*** at 84). Appellant quotes the PTO Guidelines for the written description requirement that "each claim limitation must be expressly, implicitly, or inherently supported in the originally filed disclosure," emphasizing the phrase "each claim limitation." Appellant goes on to explain that the requirement is satisfied because the claim limitations are recited ***verbatim*** or near ***verbatim*** in the disclosure. The claim limitations referenced by appellant are the individual elements. However, the claimed interconnections, established by the "in response to"

language, are claim limitations as well, and appellant appears to disregard these interconnections as claim limitations.

On pages 15-16 of the Supplemental Appeal Brief and 12-16 of the Reply Brief, appellant argues that the examiner disregards the reduced-to-practice "Experimental System." Further, appellant asserts (Reply Brief, pages 16-32) that the disclosure provides legal "examples" of computer programs for many of the claim limitations. On pages 23-60 of the Reply Brief, appellant argues that the reduced-to-practice computer programs provide working examples of various claimed elements such as temporal interpolation (referring to specification pages 248-292, 435-438, and 567-574), spatial interpolation (referring to specification pages 31-37, 146-150, 164-168, 240-373, and 503-574), undersampling (referring to specification pages 53, 57, 90, and 378), and filtering (referring to specification pages 29, 33, 64, 69, and 169). The rejection states (Answer, page 13) that "[w]hile there may be mentions of these various elements (or processes) scattered throughout the specification, there is no disclosure of actually combining these disparate items into one complete integrated system as is now being claimed." Appellant's arguments do not address the lack of interconnections, but rather focus on individual elements. Furthermore, the disparate pages referenced by appellant in pointing to the support for the

various elements evidence that the disclosure fails to tie all the elements together in the manner claimed.

Appellant argues (Reply Brief, pages 67-77) that the examiner has misrepresented the disclosure, disregarding elements that are relevant to the claimed interconnections. Appellant reproduces portions of the disclosure to support this position. However, the reproduced sections do not indicate exactly how the various claimed elements are interconnected.

Appellant contends (Reply Brief, pages 90-97 and 106) that the examiner's written description rejection is really an enablement issue as the interconnections deal with how to make the invention. The claim language "in response to" establishes certain interconnections between the claimed elements, and those interconnections need support in the disclosure. If the elements are disclosed, but with no particular configuration, or in a different configuration than what is claimed, then there is no written description. There may be an enablement issue as well, but the examiner is correct in rejecting the claims under the written description portion of § 112, first paragraph.

**Appellant's arguments specific to claims 105, 177, 190, and 191**

We first note that appellant points to several pages scattered throughout the 576 page specification to show support

for the four claims. Appellant also directs our attention to numerous drawings for the various claim limitations, rather than a single drawing that shows all of the limitations. Although there is no requirement that a claim be limited to a single drawing, the court has said "one skilled in the art, reading the original specification, must "immediately discern the limitation at issue" in the claims. ***Waldemar Link GmbH & Co. v. Osteonics Corp.***, 32 F.3d 556, 558, 31 USPQ2d 1855, 1857 (Fed. Cir. 1994). When several elements are claimed with interconnections therebetween, clearly the most straightforward way to immediately discern the limitations would be for them to be shown in a single drawing, or a couple of drawings where the relationship between them is clearly indicated. With that said, we now turn to appellant's reading of the claims.

Claim 105 recites (1) a memory storing input image information, (2)(a) an undersampling circuit (b) coupled to the memory, (3)(a) a spatial interpolation circuit (b) coupled to the undersampling circuit and generating information in response to the undersampled image information, and (4)(a) a temporal interpolation circuit (b) coupled to the spatial interpolation circuit and generating information in response to the spatially interpolated image information. Claim 190 is a process which parallels claim 105, reciting (1) storing input image information

in a memory, (2)(a) undersampling (b) the input image information, (3)(a) generating spatially interpolated image information (b) in response to the undersampled image information, and (4)(a) generating temporally interpolated image information (b) in response to the spatially interpolated image information.

Appellant directs us, for example, to image memory 111(c) (which is part of the geometric module 110A) of Figure 1C, image memory 120D of Figure 1H, or image memory 131D of Figure 1J for the claimed memory. Therefore, we find support for the image memory of claim 105 and the step of storing in the image memory of claim 190.

The undersampling circuit and corresponding process step, according to appellant, is also part of the geometric module 110A. The portions of the specification referenced by appellant explain that spatial compression and decompression can be performed by undersampling an input array in the input memory. Therefore, the step of undersampling the input image information of claim 190 and the coupling to the image memory of claim 105 appears to be supported by the disclosure. No undersampling circuit is shown in any of the drawings nor do any of the referenced portions of the disclosure clearly indicate what elements correspond to the undersampling circuit. Nonetheless,

the discussion on pages 102-105 of undersampling in conjunction with compression is in the section of the specification entitled "Geometric Processor." Thus, the undersampling circuit would appear to be within the geometric module, as asserted by appellant.

Appellant points to spatial module 110E in Figure 1A for the spatial interpolation circuit and step of generating spatially interpolated information. Spatial module 110E follows the geometric module, and thus would appear to function "in response to" the undersampling circuit which is within the geometric module. However, many of the portions of the specification referenced by appellant for a discussion of interpolation are under the heading of "Geometric Processor." Thus, it is unclear if the spatial interpolation circuit is "coupled to the undersampling circuit" and functions "in response to the undersampled image information" and whether the spatial interpolation step is "in response to the undersampled image information."

Last, for temporal interpolation, appellant directs us, for example, to both element 110A and also element 110R in Figure 1A. None of the drawings explicitly show a temporal interpolation circuit. Although line 110H in Figure 1A could be considered to take the image information generated by the spacial module for

further processing by the geometric module 110A, it is unclear how element 110R would act "in response to" the image information output by the spacial module. Furthermore, none of the blocks 110 in Figure 110A, for example, is described in the disclosure as capable of performing interpolation. The disclosure does define temporal interpolation as generating initial conditions for each field (see page 248 and 258), distinguishes between temporal and spatial interpolation (see page 248), and describes an interpolation routine (see pages 269-278 and 281-282), but does not support a temporal interpolation circuit functioning in response to spatially interpolated image information or a temporal interpolation step in response to spatially interpolated image information. Accordingly, we agree with the examiner that the disclosure lacks written description support for claims 105 and 190.

Claim 191 adds a step to the end of the process of claim 191. As we found no written description support for claim 190, we likewise find no such support for claim 191. Similarly, claim 177 is similar to claim 190 except that it includes further steps between the step of storing input image information and the step

of generating undersampled image information and also adds steps following the step of generating temporally interpolated image information. As we found no written description support for claim 190, we also find no such support for claim 177. Consequently, the lack of written description rejection of claims 105, 177, 190, and 191 is sustained. Claims 178-189, 192, 195, 206, 213, 216, 219, 229, 232, 235, 237-248, 251, 254, 265, 275, 278, 285, 288, 303, 304, 307, 310, 311, 314, 317, 320, 323, 324, 327, 330, 331, 334, 336 through 338, 341 through 346, 349, 351 through 353, 356 through 361, 364, 366 through 368, 371, 374 through 377, 379, 382, 384, 389, 390, and 393 through 395, the "product claims," are dealt with below. The lack of written description rejection of the remainder of the claims on appeal is sustained because appellant has not demonstrated how these claims have such support in the disclosure.

**Appellant's arguments as to the product claims**[3]

The examiner finds no written description support for the "making a product" limitations (Answer, pages 16-21). An exemplary "making a product" limitation is claim 178: "A process

[3] As indicated ***supra***, the product claims are claims 178-189, 192, 195, 206, 213, 216, 219, 229, 232, 235, 237-248, 251, 254, 265, 275, 278, 285, 288, 303, 304, 307, 310, 311, 314, 317, 320, 323, 324, 327, 330, 331, 334, 336 through 338, 341 through 346, 349, 351 through 353, 356 through 361, 364, 366 through 368, 371, 374 through 377, 379, 382, 384, 389, 390, and 393 through 395.

as set forth in claim 177, further comprising the act of: making a product in response to the temporally interpolated image information." The examiner explains (Answer, page 18) that there is no disclosure of "what the products are, how they are made, and how such product claims should be interpreted." The examiner continues that "[p]articularly, there is no description of making the claimed 'products' in response to the limitations of other claims."

The step of "making a product" is an additional step (as indicated by the limitations "further comprising" and "in response to"). Thus, the product is not the end result of the process, but is the result of some additional "making" step. The specification does not describe the "product" that is made or the additional "making step." Certainly, the specification does not describe making anything tangible in the way of hardware. There is no reason why appellant cannot specifically describe and name what is being made instead of using the generic term "product." The descriptions of "products" in the specification have nothing to do with the claimed products, but deal with such things as the result of a multiplication operation. Although the disclosure describes hardware (computers, memory chips, etc.) which are products, this hardware does not fit the claimed product which is made in response to information. Appellant does not inform us

what he means by the "product" or "making" step; instead, he leaves it for us to guess at what is intended. While in some cases examiners may guess at what is meant by "products," the disclosure should speak for itself. Thus, there is a ***prima facie*** case of lack of written description.

Appellant (Reply Brief, pages 99-104) points to particular occurrences in the specification of terminology, such as "oil," "mineral," and "vehicle" as support for the claimed oil, mineral, and vehicle products. The skilled artisan would consider an oil product to refer to something produced from oil and a vehicle product to refer to something produced by a vehicle. The referenced portions, though, merely state that the invention may be used by companies involved in fields dealing with oil and minerals or as a display for a vehicle; they do not clearly define, for example, an "oil product," a "mineral product," or a "vehicle product." Thus, the referenced portions of the disclosure do not answer the question as to what the various products are. Further, the cited portions of the specification provide no indication as to what the additional "making steps" would be.

Appellant argues (Brief, pages 26-30, and Reply Brief, pages 60-61) that the § 112, first paragraph, rejections regarding product terminology are improper because 35 U.S.C. § 271(g)

expressly provides protection of a "product" made by the claimed process and covers "products" even without reciting "product" terminology.

Section 271(g) excludes others from using or selling throughout the United States, or importing into the United States, products made by a patented process. The "products" in § 271(g) refer to the clearly identified end products of a manufacturing process, such as a particular chemical produced by a chemical process. That is, the patent claims would recite a process for making a specific named machine, manufacture, or composition of matter and would not just recite a "product" without saying what it is. Section 271(g) does not answer the question of where the present specification describes what the product is or where it describes making the undescribed product as an additional step after the end of the process. The "making a product" claims do not recite that the product is what is made by the process of the independent claim as argued by appellant. The issue is not whether the term "product" is found somewhere in the patent statute, or whether the result of a process is always a "product," but whether there is written description support for the additional step of "making a product," in particular, for what the "product" is, and how it is "made." If appellant is somehow arguing that § 271(g) allows claims using the generic

term "product" without disclosing what the product is or how it is made, this is error. Section 271(g) is an infringement provision and has nothing to do with claiming.

Appellant argues (Brief, page 30) that the § 112, first paragraph, rejections, regarding product terminology are in conflict with the law of the Court of Customs and Patent Appeals (CCPA) and, hence, the Federal Circuit, which states that an invention can be claimed both as a "process" and a "product," so it is clearly permitted to claim both the process and the further act of making a product in response to the process or as a step in the process.

This argument simply does not address the rejection. The "making a product" claims do not recite that the product is what is made by the process of the independent claim, but recite a product made by an additional step, where there is no written description of the "product" or the step of "making." Appellant has not identified what he means by the product. Furthermore, it is not just what appellant intends, but what the disclosure objectively teaches one of ordinary skill in the art.

Appellant argues (Brief, pages 29-30) that products include "machines" and "manufactures" and that clearly the disclosed apparatuses constitute "machines" and "manufacture" and, hence, products. It is also argued that the disclosed signals

constitute "manufactures" (and hence "products") because the signals are physical things made by the disclosed circuits.

The three product classes of statutory subject matter under 35 U.S.C. § 101 (machine, manufacture, and composition of matter) have traditionally required physical structure or matter. While the specification discloses things, such as computers, memory chips, wires, etc., which are products, the claim language does not read on these things. No tangible physical structure is made in response to information as recited in the claims. We also disagree with the argument that "signals" are a "manufacture" and hence a product. A signal, while physical in the sense that it can be measured, does not have a tangible physical structure and does not fall within any of the statutory categories. ***See In re Bonczyk***, No. 01-1061 (Fed. Cir. May 11, 2001) (unpublished) ("fabricated energy structure" does not correspond to any statutory category of subject matter and it is unnecessary to reach the alternate ground of affirmance that the subject matter lacks practical utility). A "composition of matter" "covers all compositions of two or more substances and includes all composite articles, whether they be results of chemical union, or of mechanical mixture, or whether they be gases, fluids, powders or solids." ***Shell Development Co. v. Watson***, 149 F. Supp. 279, 280, 113 USPQ 265, 266 (D.D.C. 1957), ***aff'd***, 252 F.2d 861, 116 USPQ

428 (D.C. Cir. 1958). A signal is not matter, but is a form of energy, and therefore is not a composition of matter or product.

"The term machine includes every mechanical device or combination of mechanical powers and devices to perform some function and produce a certain effect or result." ***Corning v. Burden***, 56 U.S. (15 How.) 252, 267 (1854); ***see also Burr v. Duryee***, 68 U.S. (1 Wall.) 531, 570 (1863) (a machine is a concrete thing, consisting of parts or of certain devices and combinations of devices). A modern definition of machine no doubt includes electronic devices which perform functions. Indeed, devices such as flip-flops and computers are referred to in computer science as sequential machines. A signal, while physical, has no concrete tangible physical structure, and does not itself perform any useful, concrete and tangible result; thus, a signal does not fit within the definition of a machine (or product).

The Supreme Court has read the term "manufacture" in accordance with its dictionary definition to mean "the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand-labor or by machinery." ***Diamond v. Chakrabarty***, 447 U.S. at 308, 206 USPQ at 196-97 ***(quoting American Fruit Growers, Inc. v. Brogdex Co.***, 283 U.S. 1, 11,

8 USPQ 131, 133 (1931), which, in turn, quotes the ***Century Dictionary***). Other courts have applied similar definitions. ***See American Disappearing Bed Co. v. Arnaelsteen***, 182 F. 324, 325 (9th Cir. 1910), ***cert. denied***, 220 U.S. 622 (1911). These definitions require physical substance, which a signal does not have. Accordingly, we conclude that a signal is not a product.

Appellant argues (Brief, pages 30-31) that claims reciting "making a product" have already been issued in ancestor Patent No. 5,584,032, that the claims in that patent have a presumption of validity, and since the present disclosure is the same as the disclosure in that patent, it must be accepted that there is written description for the terminology in this application. Likewise, appellant argues (Supplemental Appeal Brief, pages 17-18, and Reply Brief, pages 61-65, 97-98, and 105) that the examiner admitted in copending applications that "such product-related terminology was obvious in view of the prior art without the benefit of the instant disclosure" and, therefore, "cannot now contend that such product-related claim limitations are insufficiently disclosed" (Reply Brief, page 65).

That other patents have been issued with similar language does not mean that that language is correct and does not control the outcome of this case. ***See In re Riddle***, 438 F.2d 618, 620, 169 USPQ 45, 47 (CCPA 1971) ("two wrongs cannot make a right"). The same applies to an examiner's actions in other cases.

Appellant contends (Brief, pages 31-37) that the disclosure recites ample product related terminology, such as "constructed," "manufactured," "implemented," "interconnected," etc. These terms deal with the apparatus and have not been shown to be relevant to the claimed process limitation of "making a product."

Appellant argues (Brief, pages 37-41) that the claimed products have antecedent basis in the ancestor patents that are incorporated-by-reference. Again, appellant points to no specific portion that discloses the claimed products and the steps of making them, as recited in the various claims. Consequently, the lack of written description rejection of the product claims, claims 178-189, 192, 195, 206, 213, 216, 219, 229, 232, 235, 237-248, 251, 254, 265, 275, 278, 285, 288, 303, 304, 307, 310, 311, 314, 317, 320, 323, 324, 327, 330, 331, 334, 336 through 338, 341 through 346, 349, 351 through 353, 356 through 361, 364, 366 through 368, 371, 374 through 377, 379, 382, 384, 389, 390, and 393 through 395, is sustained.

***35 U.S.C. § 112, First Paragraph, Enablement Rejection***

The examiner is of the opinion (Answer, pages 21-22) that the claims on appeal are directed to subject matter that was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention without undue

experimentation. The examiner asserts (Answer, page 24) that appellant has presented a non-enabling disclosure because the various elements discussed in the disclosure are not discussed together in "any single embodiment of the specification or shown in any Figure." The examiner further explains (Answer, page 24):

> The rejected claims are directed to systems with individual elements that operate together (as an example, see claim 105 . . .). This is shown by the claim recitations directed to interconnections and interrelations between the claimed elements . . . that is not supported or described in the originally filed specification. The specification does not contain any disclosure directed to the combination of elements, represented by these claimed interconnections and interrelations. The original specification does not disclose or enable the complete systems that are now being claimed. . . . The specification, at best, simply mentions some of the claimed words (or variations thereof) without providing any actual disclosure as to how the elements are to be constructed or how the elements are to be used or how they function, in combination with one another or individually.

In other words, "[t]he interconnections and interactions of the claimed components to perform the claimed functions in combination is lacking from Appellant's specification" (Answer, page 25).

"The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation." ***United States v. Telectronics, Inc.***, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988). The

factors to be considered in determining whether a disclosure would require "undue experimentation" are summarized in ***In re Wands***, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). The ***Wands*** factors "are illustrative, not mandatory. What is relevant depends on the facts." ***Amgen, Inc. v. Chugai Pharm. Co., Ltd.***, 927 F.2d 1200, 1213, 18 USPQ2d 1016, 1027 (Fed. Cir. 1991). The enablement requirement is separate and distinct from the written description requirement of § 112, first paragraph. ***See Vas-Cath, Inc. v. Mahurkar***, 935 F.2d at 1563, 19 USPQ2d at 1117. A specification may enable one skilled in the art to make and use an invention and yet still not describe it. ***Id.*** at 1561, 19 USPQ2d at 1115.

It appears that the examiner's position is that since there is no written description of certain limitations, one of ordinary skill in the art would not be enabled to make those limitations without undue experimentation. This does not fit the test for enablement. While we agree with the written description rejections, the fact that limitations are not described does not establish that it would take undue experimentation for one of ordinary skill in the art to make what is claimed. The level of skill in the pertinent arts of computers, memory architecture, and computer programs was high. Although the ***Wands*** factors are only for guidance, the examiner has not provided any explanation of why one of ordinary skill could not make the broadly claimed

subject matter without undue experimentation. We conclude that the examiner has failed to make out a ***prima facie*** case of lack of enablement, not that the claimed subject matter is enabled. The enablement rejection of claims 98 through 102, 104 through 108, 115, 116, 120 through 125, 131 through 141, 143 through 147, 154, 155, 161 through 164, 170, 171, 175 through 195, 204 through 206, 211 through 219, 227 through 254, 263 through 265, 273 through 278, 286 through 288, 297 through 304, 307, 310, 311, 314, 317, 320, 323, 324, 327, 330, 331, 334, 336 through 338, 341 through 346, 349, 351 through 353, 356 through 361, 364, 366 through 368, 371, 374 through 377, 379, 382, 384, 389, 390, and 392 through 395 is reversed.

**CONCLUSION**

The decision of the examiner rejecting claims 98 through 102, 104 through 108, 115, 116, 120 through 125, 131 through 141, 143 through 147, 154, 155, 161 through 164, 170, 171, 175 through 195, 204 through 206, 211 through 219, 227 through 254, 263 through 265, 273 through 278, 286 through 288, 297 through 304, 307, 310, 311, 314, 317, 320, 323, 324, 327, 330, 331, 334, 336 through 338, 341 through 346, 349, 351 through 353, 356 through 361, 364, 366 through 368, 371, 374 through 377, 379, 382, 384, 389, 390, and 392 through 395 under 35 U.S.C. § 112, first paragraph, is affirmed as to the written description rejection and reversed as to the enablement rejection.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

**AFFIRMED**

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| KENNETH W. HAIRSTON<br>Administrative Patent Judge | ) |
| LEE E. BARRETT<br>Administrative Patent Judge | ) BOARD OF PATENT APPEALS AND INTERFERENCES |
| ANITA PELLMAN GROSS<br>Administrative Patent Judge | ) |

APG:clm

Appeal No. 2002-0652
Application No. 08/465,072

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